Executive Summary

Drilling activities are key to hydrocarbon production and reserve accretion and constitute the single most significant operation of an upstream oil exploration company, both financially and operationally. A performance audit of utilisation of rigs of Oil and Natural Gas Corporation Limited (ONGC - hereinafter referred to as the Company) was conducted to obtain reasonable assurance that the Company had planned, hired, deployed, utilised and maintained rigs in an efficient and effective manner. The period from 2010-11 to 2013-14 has been covered in the report. Significant audit findings are listed below:

Planning of Rigs

The Rig Requirement Plan (RRP) which estimates the offshore rigs required by the Company in the forthcoming five-year period to meet its planned drilling activities was prepared essentially on the basis of past experience of rig utilisation. This included idling of rigs in the past, bulk of which was controllable by the Company, for example, 86.26 to 93.89 *per cent* of the total non-productive time (NPT) in Western Offshore, where maximum rigs were deployed, were on account of controllable factors. The RRPs, thus, had in-built inefficiency. No RRP was prepared for onland areas. The Company also prepares annual Rig Deployment Plans (RDPs) for deployment of rigs. The annual RDPs (2010-14) provided additional rig days compared to the RRPs and, thus, included a margin for higher degree of inefficiency.

(Paragraphs 3.1 and 3.3)

There was no uniformity in the manner of preparation of annual RDPs among the Assets and Basins. Benchmark norms have been prescribed by the Company for a few onland Assets in 2011. However, even for these Assets, the benchmarks had not been uniformly adopted. It was noticed that plan for Ankleshwar, Ahmedabad and Mehsana Assets had days in excess of benchmark norms, 2011. Of the balance onland Assets (where benchmark norms had not been prescribed by the Company even by May 2015), some used the performance incentive norms, 2003 to prepare their RDPs while others had based their RDPs entirely on past performance. All offshore Assets and Basins prepared their RDPs based on past performance. Non-availability of norms and non-adherence to available norms led to distorted planning which resulted in un-reliable performance evaluation of the work centre and its employees.

(Paragraph 3.3.1)

Acquisition and hiring of rigs

The Company needs to hire rigs in a timely manner to ensure seamless drilling operations. During 2010-14, 13 contacts out of 23 tenders selected in offshore areas and 8 out of 9 tenders in onland areas were not finalised within the prescribed time norm (delays of upto 508 days noticed). There were persistent delays at each stage of the tendering process, in initiation and finalisation of the indent, issue of NIT, finalisation of the tender and even in signing of the contract. Delays were also noticed in cases where the rigs already in use were

being re-hired. Delay in hiring process led to loss of 391 rig months during 2010-14 which rendered the Company unable to drill planned locations.

(Paragraphs 4.2 and 4.3)

Besides delay, Audit noticed deficiencies in the tendering process of the Company. In two tenders (out of 32 tenders finalised over 2010-14), the Company relaxed the Bid Evaluation Criteria (BEC) after bids had been received and, thus, accepted the rigs that did not conform to BEC. In both cases, rigs were not mobilised by the contractor subsequently and the Company lost precious rig months (in one case the loss was 33 rig months while in the other the loss was 15 rig months).

(Paragraphs 4.4.1 and 4.4.2)

Acquisition of new offshore rigs had been proposed in 2002 but no decision was taken for over a decade. Meanwhile, four out of six owned offshore rigs had outlived their economic life of thirty years. The decision regarding procurement of onland rigs was not consistent. While six onland drilling rigs were procured (2012) despite negative NPV and lack of rig discard policy, five mobile rigs were not procured on the same grounds. The latter five onland mobile rigs were required for replacing existing rigs already laid off/ proposed to be laid off and, therefore, the decision affected availability of onland mobile rigs.

(Paragraphs 4.6.1 and 4.6.2)

Deployment of rigs

One-third of the locations actually drilled by the Company during 2010-14 were not in RDP (615 unplanned locations drilled against 1,867 planned locations) which rendered the elaborate annual planning exercise for budgetary and revised estimates meaningless.

(Paragraph 5.1)

The planned availability of rigs for drilling was set at 95 *per cent* for owned rigs and 100 *per cent* for charter hire rigs. However, rigs remained out of cycle for prolonged periods which resulted in actual rig availability being much lower (87 to 91 *per cent*). During 2010-14, rigs remained out of cycle for 12 *per cent* of the available time leading to loss of 679 rig months. In the Western Offshore area, where the highest number of jack-up rigs (22 rigs) were deployed for development and exploratory activities, ₹ 517 crore was charged off on account of rigs out of cycle during 2010-14. Of this, 78 *per cent* (₹403 crore) pertained to owned rigs.

(Paragraph 5.2)

In addition to rigs remaining out of cycle, rigs remained idle for considerable periods even after being deployed for drilling. Idling of rigs led to lower utilisable rig months and increased drilling cost. Non Productive Time (NPT) of rigs in 2010-14 ranged between 19 to 23 *per cent*. While a fraction of NPT was on account of non-controllable factors like weather, the bulk of idling time (valuing ₹ 6,418 crore) was well within the control of the Company and could have been addressed through better planning and coordination. Rigs idled as the

locations were not ready for drilling, for want of material supply and on account of non-availability of manpower. Even as rigs remained idle waiting for ready sites, facilities remained idle for want of deployment of rigs. In Mumbai offshore Asset, though 21 platforms were ready for drilling (2010-14), rigs had not been deployed and the platforms remained idle for upto 777 days which resulted in idling of facilities and deferment of estimated production valuing ₹ 4,003 crore (approx.) for oil and ₹ 1,174 crore (approx.) for gas**.**

(Paragraphs 5.3 and 5.3.1.2)

The Company overlooked safety procedures in drilling operations. Production testing operations were continued on an exploratory well (in KG Basin) even after the anchor of the rig Sagar Vijay snapped, though it was a serious safety lapse. This led to snapping of another anchor which caused the rig to drift by 140 metres from the location. The well had to be closed immediately and abandoned. The Company incurred an avoidable expenditure of ₹ 1,577.27 crore on account of this lapse. No insurance compensation could be received as established safety procedures had been violated by the Company.

(Paragraph 5.4.1 A)

The Company took nearly a year's time to terminate the contract with M/s. Shiv Vani Oil and Gas Exploration Services Limited, New Delhi. The problems in operation of the rig were known by March 2013, yet the contract was extended in April 2013. The notice for termination of the contract was issued in August 2013 (three months later) allowing 15 days for correction. The second notice was issued two months later in October 2013 allowing 30 days for correction. Six months later, in April 2014, the contract was actually terminated though the contractor had stopped work in November 2013.

(Paragraph 5.4.2.1)

The target cycle speed fixed for Drilling Services group in their performance contracts was consistently lower than the cycle speed targeted in the annual plans of the Company. While Drilling Services group over-achieved their performance target, the planned cycle speed was not achieved. Besides, the single target cycle speed fixed for Drilling Services group was not an appropriate benchmark to measure performance as the actual performance of onland and offshore rigs varied widely (against the target cycle speed of Drilling Services group of 677 metres, offshore rigs achieved only 353 metres while cycle speed of the onland rigs was 803 metres). Efficiency of the Company owned rigs was poor (ranging from 27 *per cent* to 49 *per cent*) with owned offshore shallow water rigs achieving less than half the cycle speed of hired rigs while the drilling cost of Company owned rigs was much higher (ranging from 34 to 131 *per cent)* than that of hired rigs.

(Paragraphs 5.5 A and 5.5.C)

Maintenance of Departmental rigs

The Company formulated (2007), a policy for dry dock management and major lay-up repairs of jack-up rigs and drew up a five year dry dock road-map for the jack-up rigs (purchased

between 1982 and 1990) in May 2007. As per the road map, dry dock and major lay-up repairs of all six jack-up rigs was to be completed by 2009. As against this plan, repair of only three rigs had been carried out so far (April 2015) with the tender for repair of another rig under process. Non adherence to the repair schedule led to rigs being operated with outdated/ obsolete equipment which was not an efficient operational practice.

(Paragraph 6.1.1)

While establishing the rationale for repair and refurbishment of jack-up rigs vis-à-vis hire/ acquisition, the Company considered efficiency of old owned rigs to be on par with hired and newly acquired rigs. However, efficiency of owned rigs had always been much lower than that of charter hire rigs (over the ten year period 2003-13, the efficiency, in terms of cycle speed, of comparable charter hire rigs have been more than 2.52 times that of owned rigs). The proposal for repair of old rigs would not be economically viable vis-à-vis hire/ purchase of rigs if realistic efficiency of owned rigs were considered. Besides, there were inordinate delays in finalising the scope of work (36 months for rig Sagar Ratna and 48 months for rig Sagar Uday) which led to cost escalations (156 and 57 *per cent*) further skewing the financial viability of repairs.

(Paragraphs 6.1.2 and 6.1.3)

Post repair, the efficiencies of jack-up rigs and drillships did not improve significantly. Rig Sagar Vijay upgraded for drilling wells with water depth of 900 metres did not drill a single well of more than 400 metres water depth between 2005 and 2013.

(Paragraphs 6.1.4 and 6.2.2)

Recommendations:

1. The Company needs to ensure that the plans (five year plan, annual plan, rig requirement plan, rig deployment plan) are complete and consistent with each other. The Company should make efforts to adhere to rig deployment plans during actual drilling. The situation where one out of every three wells drilled is un-planned needs to be corrected.

2. The controllable non-productive time of past periods should not be loaded to future rig requirement plans. With induction of new technology and hi-tech rigs, realistic targets for rig requirement ought to be set to have the desired stretch in performance. Suitable measures need to be taken to reduce the non-productive time of the rigs, particularly in eliminating rig waiting due to controllable factors like waiting for locations, ready drill sites, environment clearance, material, manpower and logistics support.

3. Initiation of indents and tendering procedure for acquisition/hiring of rigs, which are entirely within the control of the Company, needs to be done on time with proper planning so that rigs are mobilised on time. In particular, indents for re-hire of rigs on expiry of their existing contracts should be issued expeditiously so that the Company does not suffer from non-availability of rigs between the periods of de-hire and re-hire. Considering that most offshore rigs owned by the Company had outlived their useful lives, policy regarding acquisition of rigs, pending for over a decade, should be finalised expeditiously.

4. The cycle and commercial speed targets for Drilling Services group should be aligned with the planned cycle and commercial speed of the Company. Considering the very different activities carried out in offshore and onland and the consistently poor performance of owned offshore rigs, there is a need for setting separate targets for each category and adequately monitoring for attainment of such targets.

5. Efforts need to be made to correct the imbalance in drilling manpower at the cutting edge, necessary for efficient operations of owned as well as hired rigs. A suitable review of the current position needs to be taken up by the Company and the position rectified in a time bound manner.

6. The assumptions made while analysing cost-benefit of repairing old owned rigs, having outlived their useful lives, should be realistic, based on past experience, particularly with regard to efficiency expected of such rigs after repairs. This would enable a balanced decision regarding major repairs of these rigs.

The Ministry of Petroleum and Natural Gas (MOPNG), while accepting all the recommendation, stated (August 2015) that the recommendations are for improvement of drilling performance and that the Company would be advised to follow all the recommendations of audit.